**Why should we do the GLOBE Mosquito Protocol?**

Mosquito Protocols and Database with GLOBE Atmosphere Protocols are a must!

Assoc. Prof. Krisanadej Jaroensutasinee, Assoc. Prof. Dr. Mullica Jaroensutasinee, Centre of Excellence for Ecoinformatics, Walailak University, Thailand

Prof. Dr. Elena Sparrow, International Arctic Research Center, University of Alaska, Fairbanks.

Concerns regarding the impact of global warming on vector-borne diseases have intensified interest in the relationship between atmospheric factors and dengue fever incidence. Global climate change poses the threat of serious social upheaval, population displacement, economic hardships, and environmental degradation. Changes in temperature, rainfall and relative humidity have potential to enhance vector development, reproductive and biting rates, shorten pathogen incubation period and encourage adult longevity. In addition, changes in wind direction, velocity and frequency will have an impact on adult mosquito populations, affecting dispersal, survival and aspects of the general behavior of many species.

Rainfall is one of the important elements for the breeding and development of mosquitoes. water not only provides the medium for the aquatic stages of the mosquito’s life cycle but also increases the relative humidity and hence longevity of adult mosquitoes. Rain may prove beneficial for mosquito breeding if moderate, but it may destroy or wash out existing breeding sites and interrupt the development of mosquito eggs when excessive. Increased rain may increase larval habitat and vector population size by creating a new habitat or increase adult survival. In tropical areas in particular, extensive and continuous rainfall can delay the build-up of some mosquito species until late in the season and thus delay transmission.

Temperature is an important environmental parameter with respect to enhancing vector development, gonotrophic cycle length, fecundity, time from emergence to first blood meal, biting rates, shortening pathogen incubation period and encouraging adult longevity. In addition, temperature is also a crucial factor in the dynamics of extrinsic incubation period (EIP) of dengue virus in *Ae. aegypti*, transmission. It can promote infective potential and produce more effective and more frequent transmission.

GLOBE mosquito data would help us gain a better understanding on the range of vector-borne diseases, and how GLOBE atmospheric data might have a significant impact on the transmission of vector-borne disease in your area.

**Suggested Activity:** Participate in the GLOBE Student Climate Research Campaign (SCRC) to help document how the atmospheric data in your region are changing! Send us an email at science@globe.gov or add a comment to let us know what you collect.